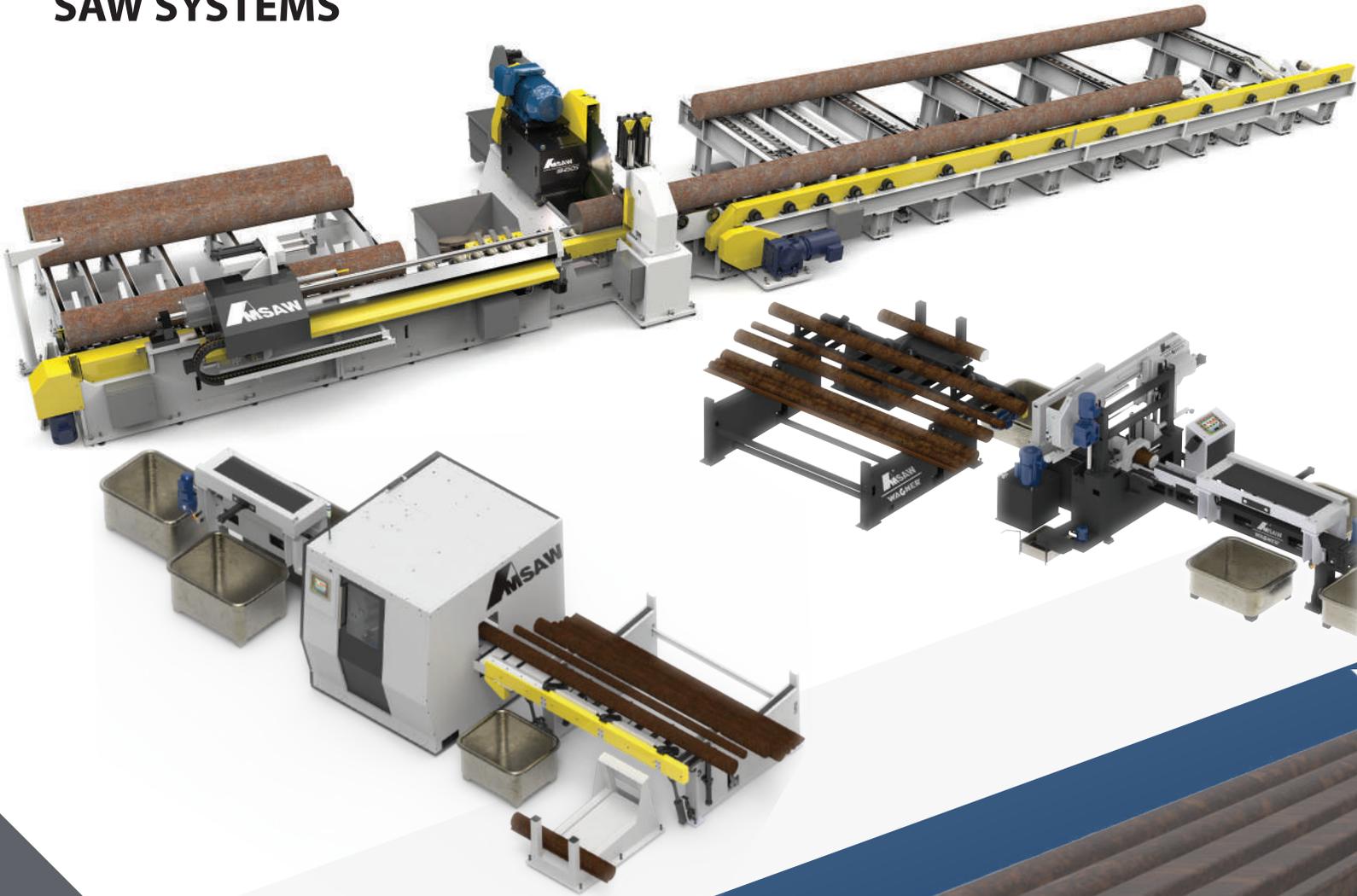




COMPACT HIGH PERFORMANCE AUTOMATIC PRODUCTION SAW SYSTEMS



COST EFFICIENT STANDARD
BUILDING BLOCK ASSEMBLIES



ENGINEERED TO BE ADVANCED

*"When Advanced Machine developed the first carbide production saws in the 1960's, our mission was to help our customers achieve the highest production at the lowest cost-per-cut. Now, as we expand the types of machinery we produce to include bandsaws, our mission remains the same: Design and build **Advanced Machines** to make our customers more successful."*

Willy Goellner, Chairman

ABOUT ADVANCED MACHINE AND ENGINEERING (AME)

In 1966 Advanced Machine was founded, designing and building machine tool oriented products, and expanded in 1969 to carbide billet saws in partnership with Metalcut Inc. The METALCUT 12 carbide billet saw was developed and disrupted the saw market by cutting 4 times faster than High Speed Steel (HSS) saws and 8 times faster than band saws. **This new product with the trade name AMSAW eventually made AME a global player in the carbide saw market with partners:**



ABOUT HENNIG

In North America, AME represented Hennig, which was founded in 1950 in Germany, since 1971. The new venture **Hennig Inc.** was established and in 1977 the plant, which was built near Rockford, started producing parts. In 2000 Hennig GmbH was purchased. Today, Hennig owns:

Hennig GmbH
Munich, Germany

Hennig CZ
Prague, CZ

Hennig France
Vichy, France

Hennig Bosnia
Zivinice, Bosnia

Both AME and Hennig are part of the holding company Goellner Inc. and include:

Total Production area in United States	about 390,000 ft² (36,000 m²)
Total Production area in Europe	about 200,000 ft² (19,000 m²)
Total Employment in United States	416 associates
Total Employment in Europe	424 associates

The foundation of AME and Goellner Inc. is innovation with strong research and development focus. Goellner Inc. with its AMSAW product line is expanding globally with partnerships and representations in all industrial countries under the trade names:

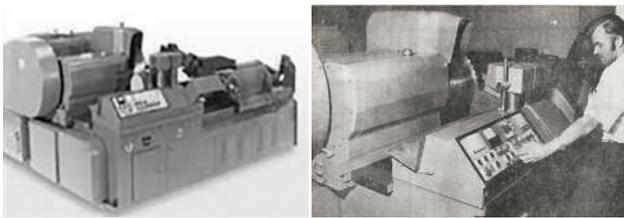


HISTORY OF SAWING

The first saw on the market to cut metal was the hacksaw, developed in the late 19th century. The blades were made from carbon steel and hardened, which made the blades brittle. To avoid breakage the hardness was reduced, but this also reduced tool life. When HIGH SPEED STEEL (HSS) was developed at the beginning of the 20th century, hacksaw blades were made from that material which improved the tool life tremendously. A new welding process allowed saw bands to be welded together at the ends which made saw bands economical to produce. This gave band saws, already developed in the 19th century, a chance to take off by using hardened carbon steel bands. In 1949 the electron-beam welding was developed and it became possible to weld a narrow HSS strip on a softer, more flexible band backing which gave the band a longer life but also hard teeth to improve tool life. Since 1980, bi-metal blades have nearly replaced the carbon steel blades. Band sawing became the leading process and eliminated the slower hack saws.

High Speed Steel (HSS) billet saws with HSS circular blades were developed in 1910. Smaller blades were made of solid HSS. Larger sizes with HSS segments were bolted to an alloy steel blank. The cutting rate was about 4 times faster than bi-metal band saws.

Circular saw blades with brazed carbide teeth were first used on plate saws to saw steel plates at Ingersoll Milling Machine Co. in 1963. The basic tooth geometry with positive cutting angle of the carbide teeth was taken from aluminum saw blades. The tool life was not economical for cutting steel billets. In the late 1960's, the University of Braunschweig, Germany, developed a new tooth geometry with 18 degrees negative cutting angles and chamfering all cutting edges to avoid sharp corners. This geometry was successfully applied on the first billet saw, developed by Advanced Machine & Engineering Co. (AME) in Rockford (ref. Wikipedia "History of Carbide Saws")



Willy Goellner operating the first standard METALCUT 12 production saw in the world market, built for METALCUT by AME (Rockford Newspaper article, August 18, 1970)

This saw was cutting **4 times faster than HSS saws and 8 times faster than band saws**. The cutting process creates hot chips which expand and jam in the cutting slot. This problem is eliminated by either of the following two solutions:

HIGH LOW GEOMETRY (3-Chip Geometry)

Triple chip geometry splits the chip into three parts. The first tooth is about .005" (0.013 MM) in higher and cut the center of the slot. The 2nd tooth cuts the remaining two sides thus creating three chips. With the triple chip geometry, a pair of teeth is cutting the width of the slot, but only the secondary tooth guides the blade in the slot.

NOTCH GRIND (2-Chip Geometry)

This geometry was developed for cutting tubing, pipes or profiles. The chip of each tooth is split in two by a notch on the cutting face. Every tooth is guiding in the slot compared to the triple chip. The cutting process is much better for interrupted cuts and faster because more teeth are cutting and guiding the blade on its sides, which reduces vibrations. However, it also requires a more rigid saw with more power. See also the article "What Circular Saw Blade Tooth Geometry is Best for Sawing Steel Billets?" in the Sawing Academy resource section on www.ame.com/sawing-academy.

AMSAW PRODUCT LINE

FOR BILLET SAWING FERROUS AND NON-FERROUS METALS



1. Standard Compact High Performance Automatic Production Saw Systems

Automatic 5 Ton Capacity Load Table for mixed 12' or 20' long bars, automatic circular carbide (or band) saw and optional exit unload systems.

SELECT SYSTEM BY PROGRAM

Model	Max. Cutting Range in. (mm)	Blade Dia. in. (mm)
AMSAW 70P & S	2.75 (70)	11 - 11.2 (280-285)
AMSAW 125P & S	5.0 (125)	14 - 16 (360-410)
AMSAW 180P & S	7.0 (180)	14 - 24 (360-600)
AMSAW 250P & S	10 (250)	24 - 39 (610-990)
AMSAW 350P & S	14 (350)	26 - 44 (660-1120)



2. Standard Compact Large High Performance Automatic Production Saw Systems

These are similar to 1. They are larger box way slide saws with heavy chain driven horizontal automatic load tables. These sizes cover the larger range of billet sizes which can be cut with circular carbide blades. Larger billets beyond the circular blade range can also be automatically cut and handled with band saws as shown on the next catalog 3.

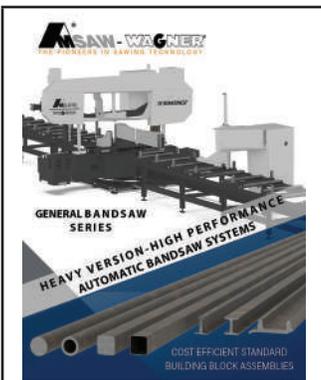
Model	Max. Cutting Range in. (mm)	Blade Dia. in. (mm)
AMSAW 350S	14 (350)	28 - 44 (710-1120)
AMSAW 450S	18 (450)	36 - 56 (915-1420)
AMSAW 600S	24 (600)	40 - 68 (1015-1730)
AMSAW 760S	30 (760)	48 - 82 (1220-2080)



3. SO 360-2000 Standard Large Automatic AMSAW-WAGNER Band Saws

These large automatic band saw systems are cutting the same range of billets as the large circular carbide saw systems described in catalog 2, but also cut larger sizes up to 86" dia. These systems are assembled from standard cost efficient sub-assemblies and are competitively priced, to European and Asian brands.

Model	Max. Cutting Range in. (mm)	Model	Max. Cutting Range in. (mm)
SO 360	14.2 (360)	SO 1100	43.3 (1100)
SO 460	18.1 (460)	SO 1300	51.2 (1300)
SO 560	22.0 (560)	SO 1600	63.0 (1600)
SO 700	27.6 (700)	SO 2000	78.7 (2000)
SO 900	35.4 (900)		



4. AMSAW-WAGNER Band Saws (General Catalog)

This large catalog shows a wide range of standard (90°)cut , miter cut and special band saws to cover the entire range of band saws.



5. Rail Saw and Drill Units for the Railway Industry

This catalog includes a smaller heavy compact pivot rail saw, a larger more rigid slide saw with box ways, heavy duty drill units and combinations of saw and drill units as shown below:

Technical Specifications

Capacity Rail	Up to 141 lbs.
Cutting Speed	100-500 sfm (30m/min - 152m/min)
Spindle Feed	4" - 40" per min (100mm/min - 1500mm/min)
Spindle Motor	50 HP (37 kW) and 75 HP (56 kW)
Blade Diameter	26" (660mm)
Number of Teeth	60 and 70
Hydraulic Tank Capacity	40 gal. (151 L)
Hydraulic Pump Motor	7.5 HP (5.6 kW)
Electrical Requirements	480 V - 3 Ph - 60 Hz
Weight	12,000 lbs. (5,500 kg)



5.1 PIVOT HEAD DESIGN

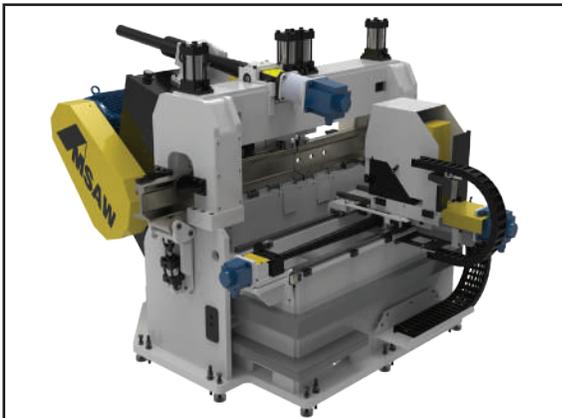
These rail saws are heavy duty machines with vertical and horizontal hydraulic clamps on both sides of the cut.

The pivot saw, with its head pivoting on heavy duty preloaded angular contact roller bearings, which are greased for life, is simpler, with fewer parts and therefore more cost efficient to purchase and to service.



5.2 SLIDE HEAD DESIGN

The inclined head sawing machine, sliding on box ways, is more rigid, with a slightly larger footprint but is also more expensive. Such saws are nested between customers' process machines.



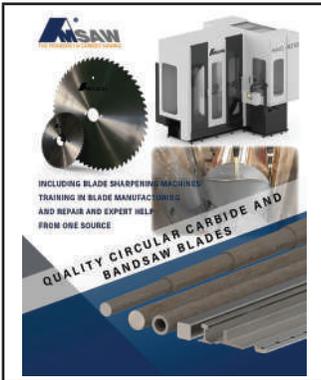
5.3 DOUBLE SIDED SINGLE AND MULTIPLE SPINDLE DRILL AND CHAMFER MACHINES

Combination, compact pivot rail saw and CNC rail drill used on rail yards to make frog and switches (Rail track switch devices) or bolted rail connection.



6. Special saw Systems Based on Customer Specifications

The AMSAW engineering staff invites you to submit your requirements. AMSAW will design and quote a saw system most suitable and cost efficient for your application.



7. Blades

AMSAW will offer you cost efficient blades, most suitable and with the best tool life to suit your material specifications and shapes.

Please send us your requirements.

With all these brochures, AMSAW PRESENTS ITSELF as a turnkey manufacturer and supplier of SAW machines and related tools and equipment on the global market.

We can supply not only complete machinery to make new or repair existing blades but also can train your associates to do the job.

Please contact us when you need help.

The AMSAW TEAM

GOELLNER INC. GLOBAL PLANTS



Goellner Inc. and AME's Headquarters



Hennig global headquarters



Hennig Germany headquarter of
Hennig holding Europe

GOELLNER INC. GLOBAL PARTNERS

FOR AMSAW PRODUCTS:



WAGNER
Ersatzteile
Reutlingen, Germany



WAGNER-SERRAS
Brazil



**SICHUAN EUROTRUST
MACHINERY, China**



ARNTZ
Germany



LEMP
GERMANY



LINDNER
GERMANY

ALL OTHER AME PRODUCTS:



SPIETH
Germany



OTT-JAKOB
GERMANY



SITEMA
GERMANY

HENNIG PARTNERS:



ENOMOTO
Japan



OSUNG
Korea



HENNIG
England

OTHER AME PRODUCTS

AMLOK PNEUMATIC
AND
HYDRAULIC ROD LOCKS

AMROK FIXTURE
COMPONENTS AND
ASSEMBLIES

G. OTT PRECISION
WORM DRIVES

OTT-JACOB
POWER DRAW BARS

SITEMA SAFETY
LOCKS

SPIETH MACHINE
COMPONENTS

HENNIG PRODUCTS

TELESCOPING STEEL COVERS

WIPERS

CABLE CARRIERS

FLEX PROTECT SYSTEMS

FOLDED BELLOWS

ROLL UP AND FLEX APRON COVERS

TELESCOPING SPRINGS

XYZ MODULES

CHIP CONVEYORS

COOLANT TANKS AND FILTRATION SYSTEMS

POWER GENERATION ENCLOSURES AND FUEL
TANKS



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